Assaying cellular responses to compounds is a fundamental aspect of the development and characterization of therapeutic molecules and the investigation of drug mechanism of action. These assays are routinely conducted on the benchtop in basic research and used extensively in the pharmaceutical industry for drug discovery. However, accurate drug response measurements and their analysis are not as straightforward as they might seem.

This nanocourse will introduce the design of cell response assays and high-throughput small molecule screens as well as relevant data analysis methods. We will present experimental and computational methods for generating reproducible dose-response measurements across cell lines, as well as computational approaches to quantifying the sensitivity of cells to single drugs and drug combinations.